marked by more or less free leaves. *Thuja ericoides* of gardens, with its heath-like foliage, was a weakly constituted form, which retained its childhood foliage, and had little disposition to branch. *Thuja meldensis* of Lindley, which from its peculiar appearance that learned author supposed to be a hybrid between the red cedar and Chinese arbor vitæ, was a form of intermediate vigor, branching moderately, and leaves intermediately adnate. *Retinispora ericoides* of Zuccarini, was also a weak form with free leaves, the well developed form of which he had had no opportunity to trace with certainty. *Taxodium distichum* Richard, and *Glyptostrobus sinensis* Endl., were no doubt the same thing. He showed, by the vigorous branching character of the latter, the necessity for the arrested foliation it presented, and exhibited specimens of vigorous (more branching) *Taxodium distichum* in which the leaves were abbreviated and twisted around the stem, exactly as in *Glyptostrobus*, except that the free parts were rather longer. This form did not branch quite as much as the typical *Glyptostrobus*, but more so than in the typical *Taxodium*.

He remarked that the two genera *Pinus* and *Sciodopitys* had their true leaves adpressed almost entirely to their branches, and illustrated this by specimens of *Pinus austriaca*. Instead, however, of these genera developing green free points on the apices, they pushed out rather abortive branches from the *axils* of the true leaves. The fasicles of leaves on these plants were not true leaves, but were intimately connected with the axial system of the plants. The adpressed true leaves on the pine were annual, although as dead epidermis they remained often on the bark until the regular excorticating period arrived; but these so-called leaves, or rather metamorphosed branchlets, remained often several years. He had known some remain eight years. Their connection with the axial system could be seen by raising the bark of a three or four year old branch on the Austrian pine.

Mr. Gabb made some remarks about Kitchen Middens, in the vicinity of San Francisco and on the shores of San Francisco Bay, his attention having been called to the similarity between them and those observed by Dr. Leidy, near Cape Henlopen. He also mentioned a curious circumstance for which he had been unable to account. In various places on the coast of both Upper and Lower California, he had observed shells, often of the heavier species, scattered over the surface in great profusion, and occasionally to a distance of several miles from the beach. They were evidently of very modern origin, being strewn on the surface of the soil, but whether they had been carried there by man or birds, he had never been able to discover.

Dr. Wm. L. Wells made some observations on the mode of scattering the spores of the *Polypodium vulgare*. Under the microscope the sporangium could be seen to open at a point near its stem; and the opening grew very slowly larger, until the continuation of the stem which previously encircled the sporangium was nearly straight. It then suddenly sprang shut with a jerk, which scattered the spores in every direction, and which usually sent the sporangium itself out of focus. In the cases in which it was not thrown entirely out of focus, the same operation could be seen to be repeated two or three times. In no case were any spores scattered during the opening, which always took place very slowly.

July 21*st*.

The President, Dr. Hays, in the Chair.

Fourteen members present.

The following paper was presented for publication:

"On the Crocodilian genus Perosuchus." By Edw. D. Cope.

Mr. Gabb made some remarks on a small lot of fossils submitted to him by Prof. Orton. The fossils are small, and all belong to undescribed species. They are of unusual interest, being the first fossils, so far as he was aware, ever found in the immense clay deposits of the Amazon Valley—the Tabatingu Clay. The fossils indicate a marine origin for this clay, all of the genera being essentially salt-water forms. They were found by Prof. Orton in a bluff showing a fine section of about fifty feet in height, at the town of Pebas, on the Amazon River, two miles above where it joins the Maranon.

July 28th.

DR. J. GIBBONS HUNT in the Chair.

Fifteen members present.

The following gentlemen were elected members: Geo. Roberts, M.D., Mr. Levi Taylor.

The following were elected correspondents: S. Spencer Cobbold, M.D., of London, W. Kitchen Parker, of London, Rev. Samuel Haughton, of Dublin, Alphonse Milne Edwards, of Paris, Wm. T. Brigham, of Boston.

On favorable reports of the committees, the following papers were ordered to be printed:

MITCHELLA REPENS, L., a dicœcious plant.

BY THOMAS MEEHAN.

A few weeks ago I had the honor of pointing out to the members of the Academy that *Epigæa repens* was a dicœcious plant. I have now to report a like discovery in *Mitchella repens*.

In the case of *Epigæa* I had to indicate the polymorphism accompanying the divisions of the sexes, as part of the discovery; in the present instance Dr. Asa Gray is before me in noting the distinct appearances; the originality of my own observation lies merely in giving the meaning of the facts already recorded. In the last (5th) edition of Gray's Manual, speaking of *Mitchella*, the author says, "Flowers occasionally 3—6, merous, always dimorphous, all those of some individuals having exserted stamens and included stigmas,—of others included stamens and exserted style." Although this statement expresses the appearance, it is not strictly accurate; for the pistil in the one case is not perfect, and in the other the anthers are mere rudiments, without a trace of pollen in any that I have examined. The two forms are truly male and female plants.

In the female plant the pistil, with its well-developed stigma, projects one-eighth of an inch beyond the throat of the corolla. The small rudimentary anthers are sessile, and hidden among the coarse down of the corolla tube, so as not to be seen without dissection.

In the male plant it is the rudimentary pistil which is confined in the villous tube, far out of reach of pollen influence, if even it were perfectly developed. On the other hand, the anthers are borne on filaments which are free from the corolla for one-eighth of an inch, and projecting that much beyond the corolla throat.

In the case of *Epigæa* I had to record many variations in the form and proportions of the floral parts. *Mitchella* is as remarkable for uniformity; except that the calyx teeth in the male are coarser than in the female, there is little variation from one type. Dr. Gray observes that the lobes of the corolla